Fig. 1 PRIOR ART

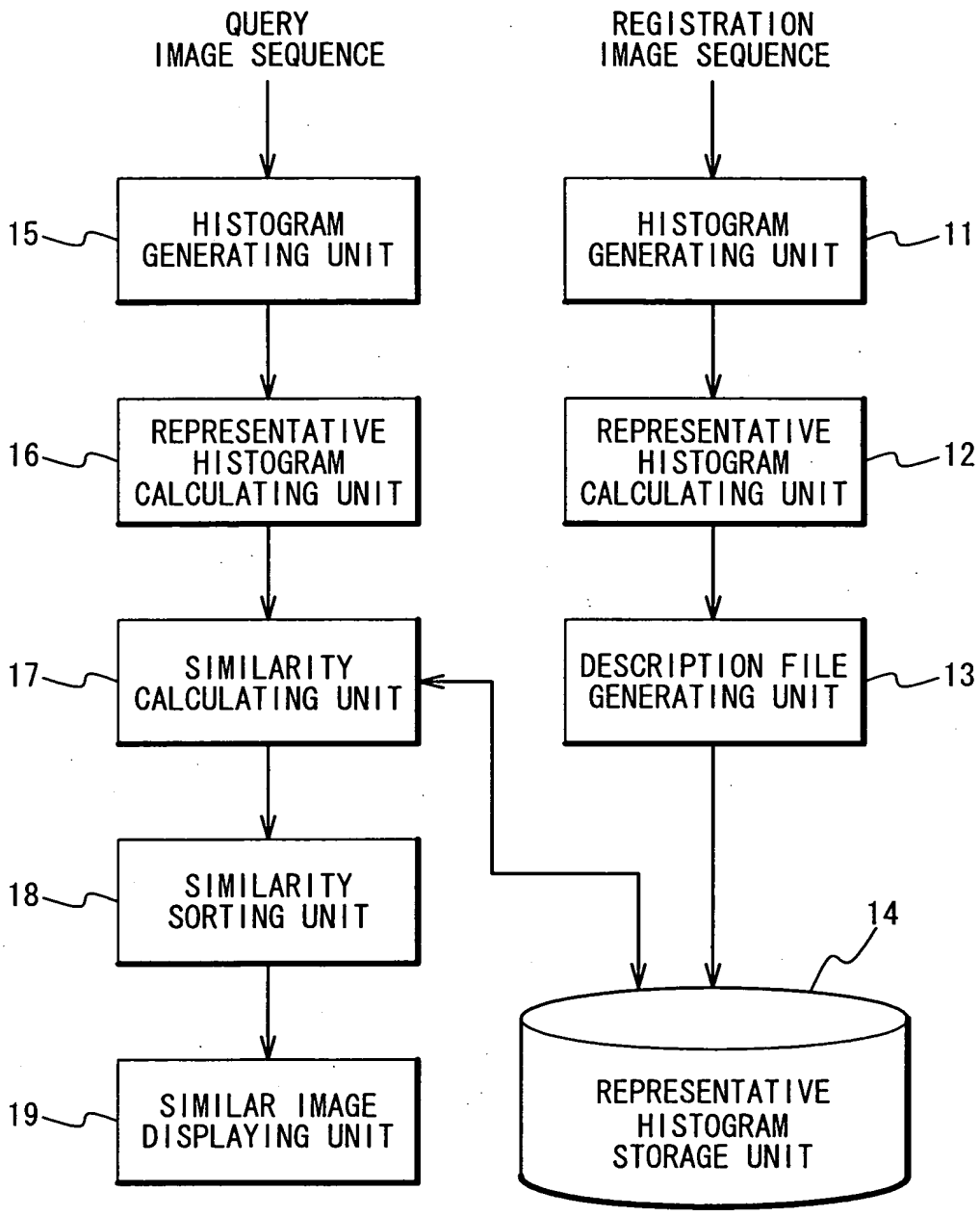

Fig. 2 PRIOR ART

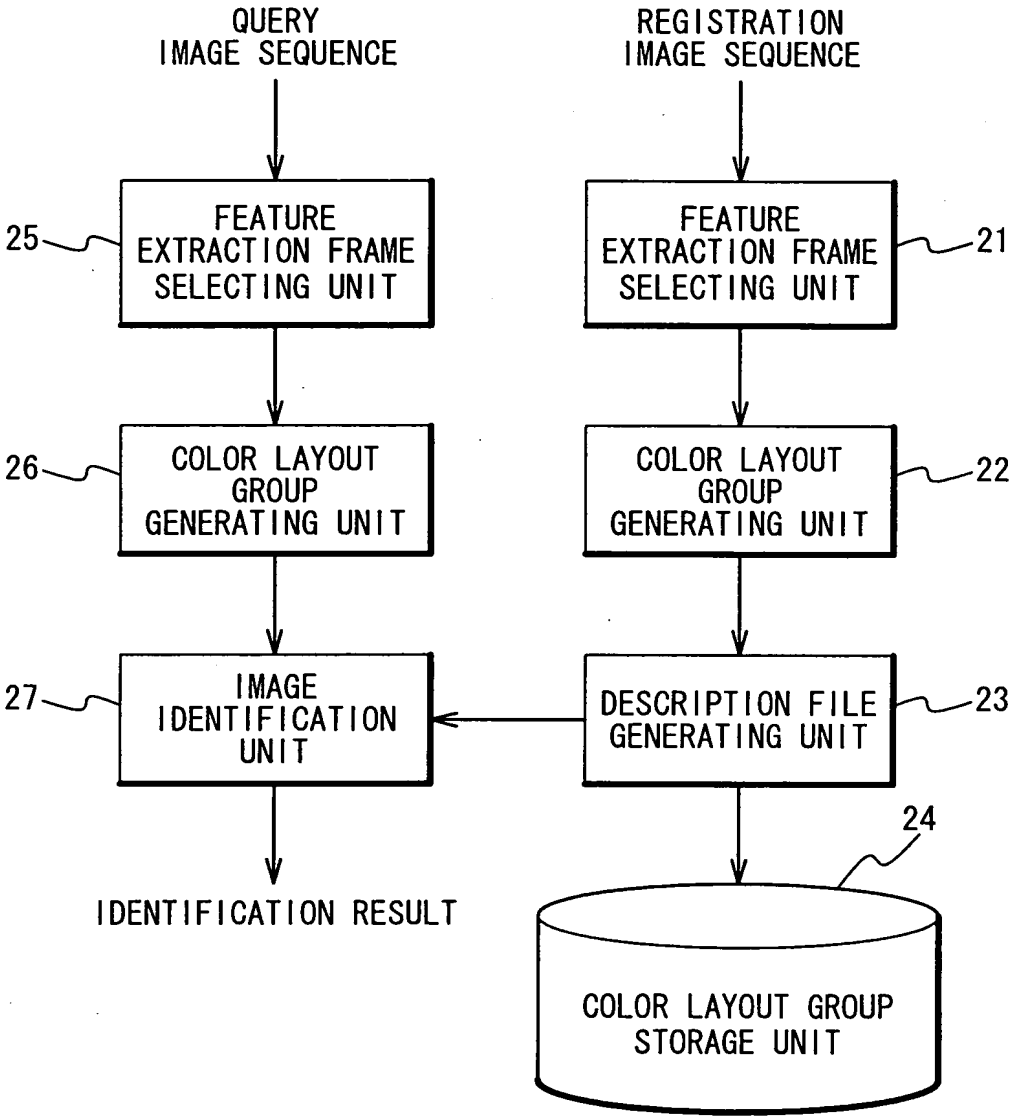

Fig. 3

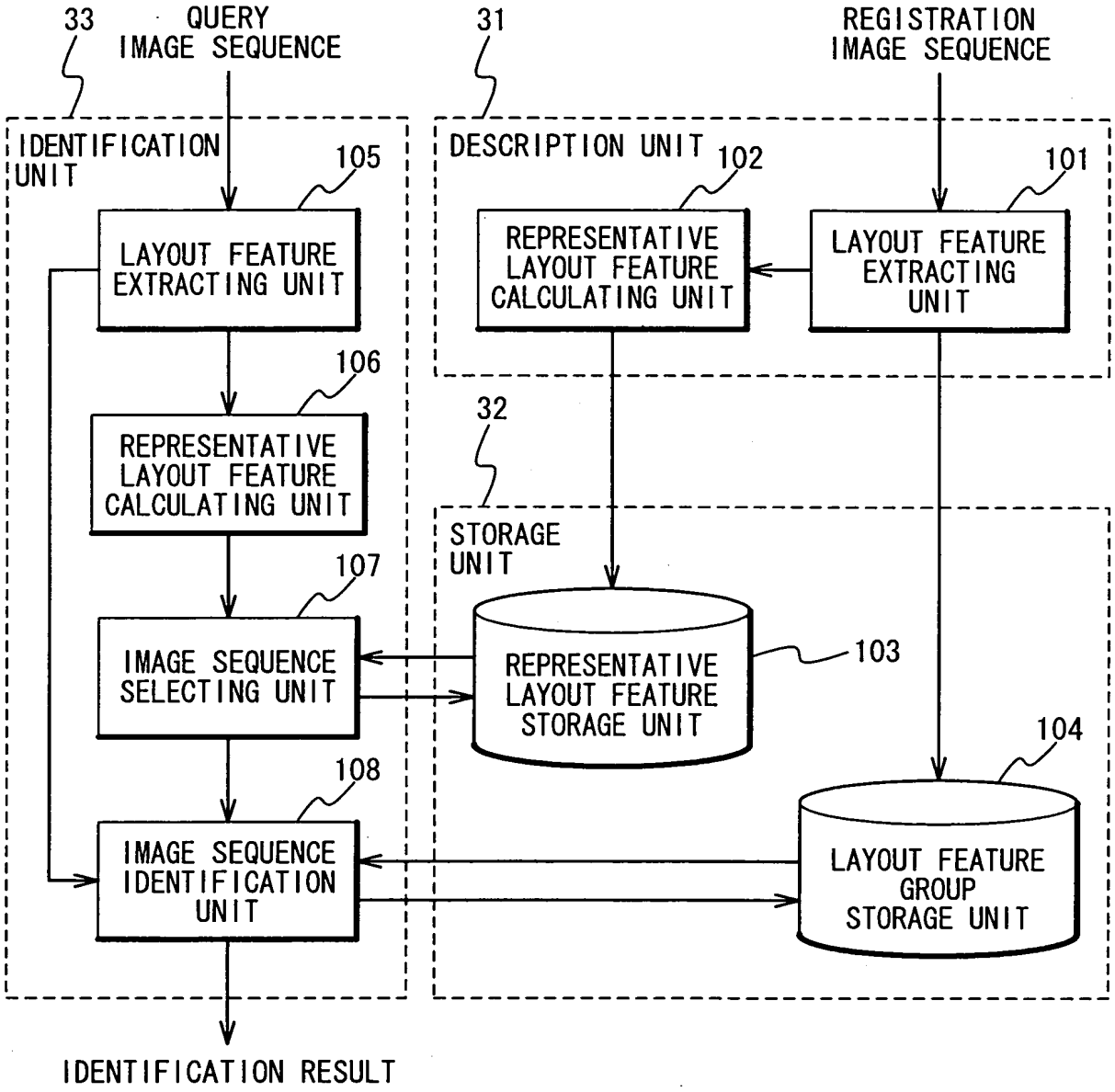
33
QUERY IMAGE SEQUENCE
31
REGISTRATION IMAGE SEQUENCE
IDENTIFICATION UNIT
105
LAYOUT FEATURE EXTRACTING UNIT
106
REPRESENTATIVE LAYOUT FEATURE CALCULATING UNIT
107
IMAGE SEQUENCE SELECTING UNIT
108
IMAGE SEQUENCE IDENTIFICATION UNIT
IDENTIFICATION RESULT
DESCRIPTION UNIT
102
REPRESENTATIVE LAYOUT FEATURE CALCULATING UNIT
101
LAYOUT FEATURE EXTRACTING UNIT
32
STORAGE UNIT
103
REPRESENTATIVE LAYOUT FEATURE STORAGE UNIT
104
LAYOUT FEATURE GROUP STORAGE UNIT

Fig. 4

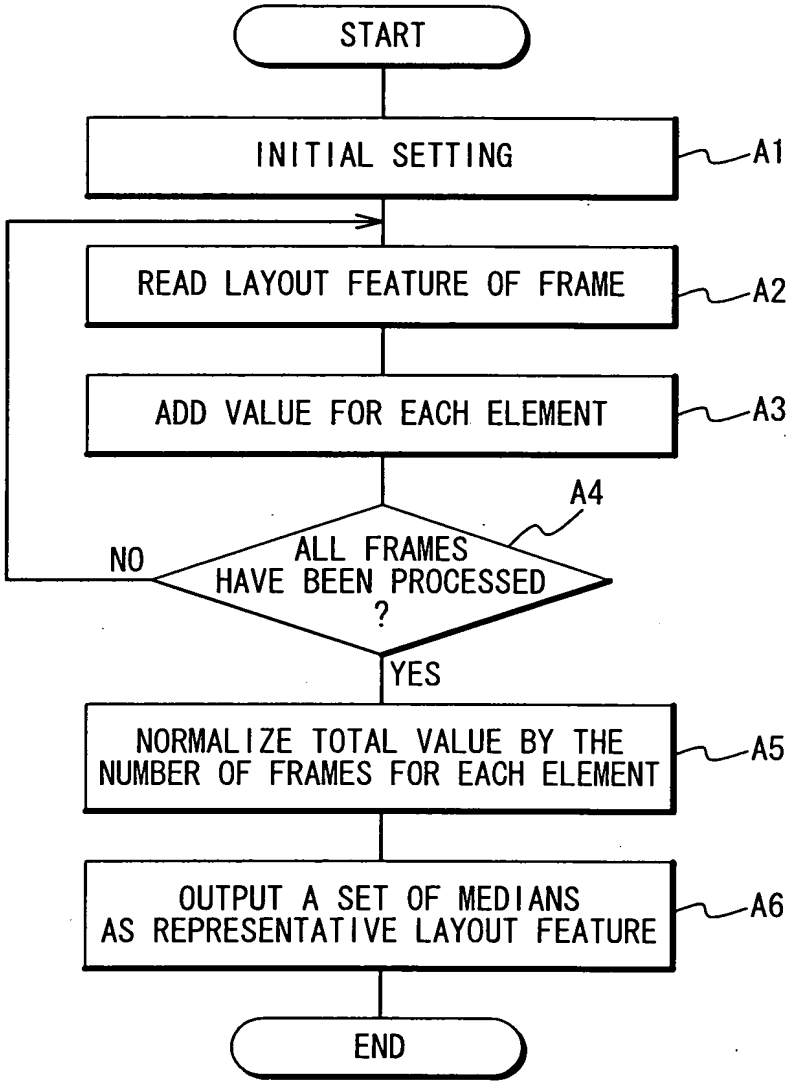
START
INITIAL SETTING
A1
READ LAYOUT FEATURE OF FRAME
A2
ADD VALUE FOR EACH ELEMENT
A3
A4
ALL FRAMES HAVE BEEN PROCESSED ?
NO
YES
NORMALIZE TOTAL VALUE BY THE NUMBER OF FRAMES FOR EACH ELEMENT
A5
OUTPUT A SET OF MEDIANS AS REPRESENTATIVE LAYOUT FEATURE
A6
END

Fig. 5

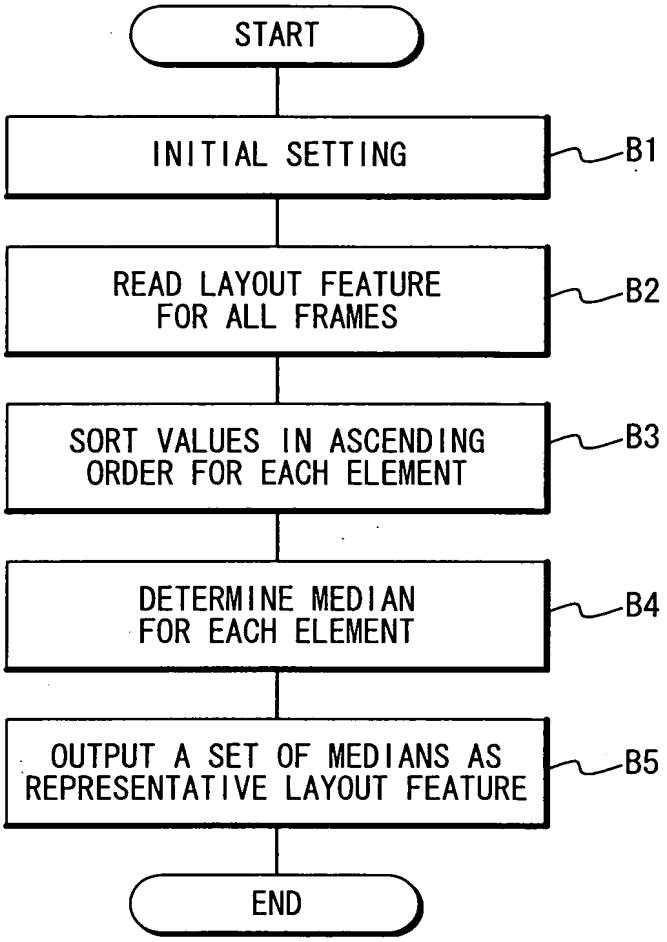
START
INITIAL SETTING
B1
READ LAYOUT FEATURE FOR ALL FRAMES
B2
SORT VALUES IN ASCENDING ORDER FOR EACH ELEMENT
B3
DETERMINE MEDIAN FOR EACH ELEMENT
B4
OUTPUT A SET OF MEDIANS AS REPRESENTATIVE LAYOUT FEATURE
B5
END

Fig. 6

| | YDC | YAC[1] | YAC[2] | YAC[3] | YAC[4] | YAC[5] | CbDC | CbAC[1] | CbAC[2] | CrDC | CrAC[1] | CrAC[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frame1 | 31 | 13 | 5 | 9 | 16 | 16 | 14 | 17 | 26 | 38 | 16 | 10 |
| Frame2 | 11 | 20 | 9 | 15 | 14 | 10 | 26 | 14 | 16 | 34 | 16 | 13 |
| Frame3 | 15 | 17 | 11 | 17 | 18 | 15 | 24 | 16 | 17 | 28 | 17 | 8 |
| Frame4 | 21 | 7 | 14 | 14 | 13 | 11 | 18 | 22 | 12 | 31 | 10 | 17 |
| Frame5 | 32 | 16 | 4 | 11 | 16 | 15 | 15 | 17 | 26 | 36 | 16 | 8 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL | 110 | 73 | 43 | 66 | 77 | 67 | 97 | 86 | 97 | 167 | 75 | 56 |
| AVERAGE | 22 | 15 | 9 | 13 | 15 | 13 | 19 | 17 | 19 | 33 | 15 | 11 |

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Fig. 7

| | YDC | YAC[1] | YAC[2] | YAC[3] | YAC[4] | YAC[5] | CbDC | CbAC[1] | CbAC[2] | CrDC | CrAC[1] | CrAC[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frame1 | 31 | 13 | 5 | 9 | 16 | 16 | 14 | 17 | 26 | 38 | 16 | 10 |
| Frame2 | 11 | 20 | 9 | 15 | 14 | 10 | 26 | 14 | 16 | 34 | 16 | 13 |
| Frame3 | 15 | 17 | 11 | 17 | 18 | 15 | 24 | 16 | 17 | 28 | 17 | 8 |
| Frame4 | 21 | 7 | 14 | 14 | 13 | 11 | 18 | 22 | 12 | 31 | 10 | 17 |
| Frame5 | 32 | 16 | 4 | 11 | 16 | 15 | 15 | 17 | 26 | 36 | 16 | 8 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEDIAN | 21 | 16 | 9 | 14 | 16 | 15 | 18 | 17 | 17 | 34 | 16 | 10 |

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# Fig. 8

```
<complexType name= “GofGopFeature” >
<complexContent>
  <choice>
    <element name= “ColorLayout”
xsi:type= “mpeg7:ColorLayoutType” />
    <element name= “EdgeHistogram”
xsi:type= “mpeg7:EdgeHistogramType” />
  </choice>
  <attribute name= “aggregation” use= “optional” >
  <simpleType>
    <restriction base= “string” >
      <enumeration value= “Average” />
      <enumeration value= “Median” />
      <enumeration value= “Intersection” />
    </restriction>
  </simpleType>
  </attribute>
</complexContent>
</complexType>
```

Fig. 9

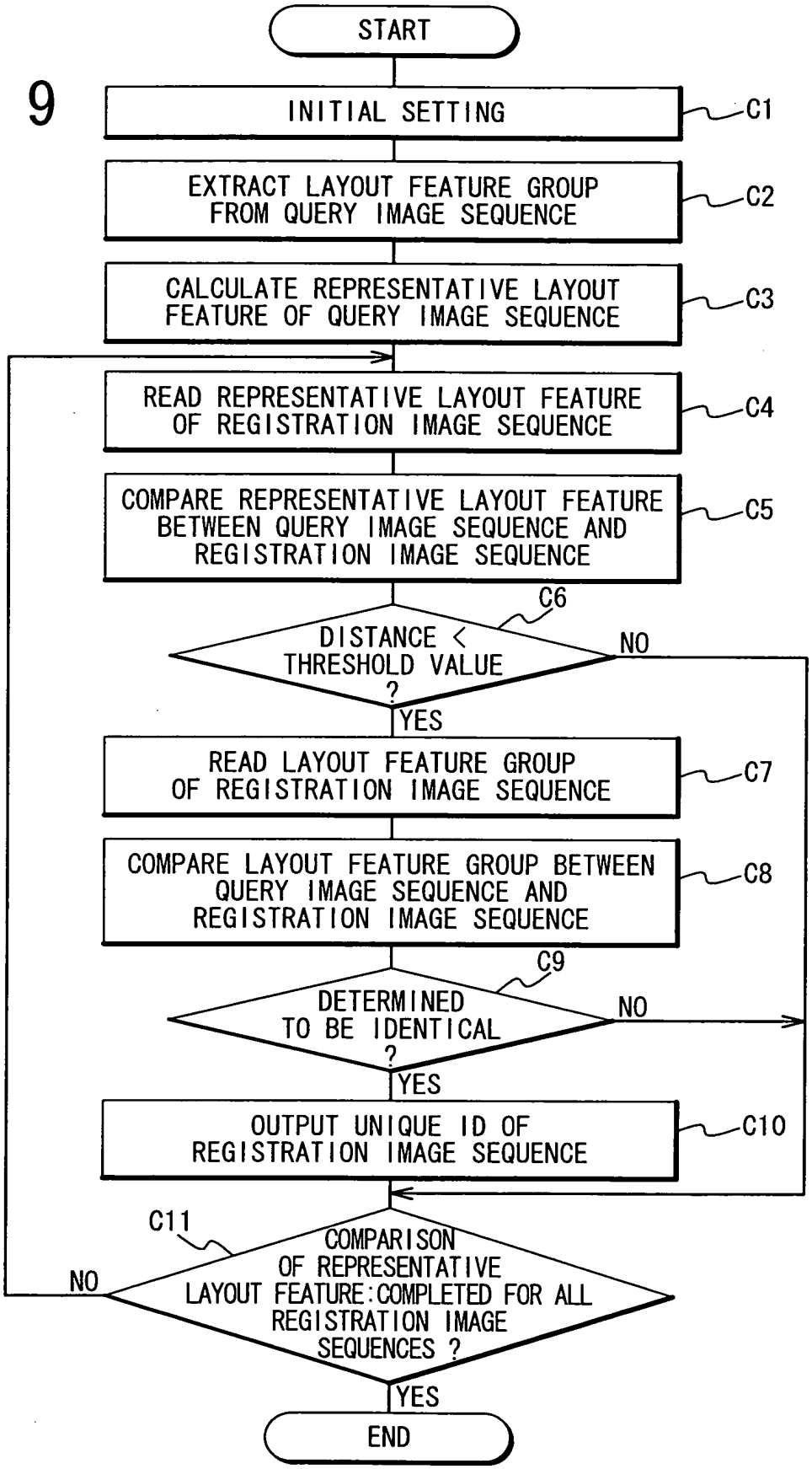
START
INITIAL SETTING
C1
EXTRACT LAYOUT FEATURE GROUP FROM QUERY IMAGE SEQUENCE
C2
CALCULATE REPRESENTATIVE LAYOUT FEATURE OF QUERY IMAGE SEQUENCE
C3
READ REPRESENTATIVE LAYOUT FEATURE OF REGISTRATION IMAGE SEQUENCE
C4
COMPARE REPRESENTATIVE LAYOUT FEATURE BETWEEN QUERY IMAGE SEQUENCE AND REGISTRATION IMAGE SEQUENCE
C5
C6
DISTANCE < THRESHOLD VALUE ?
NO
YES
READ LAYOUT FEATURE GROUP OF REGISTRATION IMAGE SEQUENCE
C7
COMPARE LAYOUT FEATURE GROUP BETWEEN QUERY IMAGE SEQUENCE AND REGISTRATION IMAGE SEQUENCE
C8
C9
DETERMINED TO BE IDENTICAL ?
NO
YES
OUTPUT UNIQUE ID OF REGISTRATION IMAGE SEQUENCE
C10
C11
COMPARISON OF REPRESENTATIVE LAYOUT FEATURE:COMPLETED FOR ALL REGISTRATION IMAGE SEQUENCES ?
NO
YES
END

Fig. 10

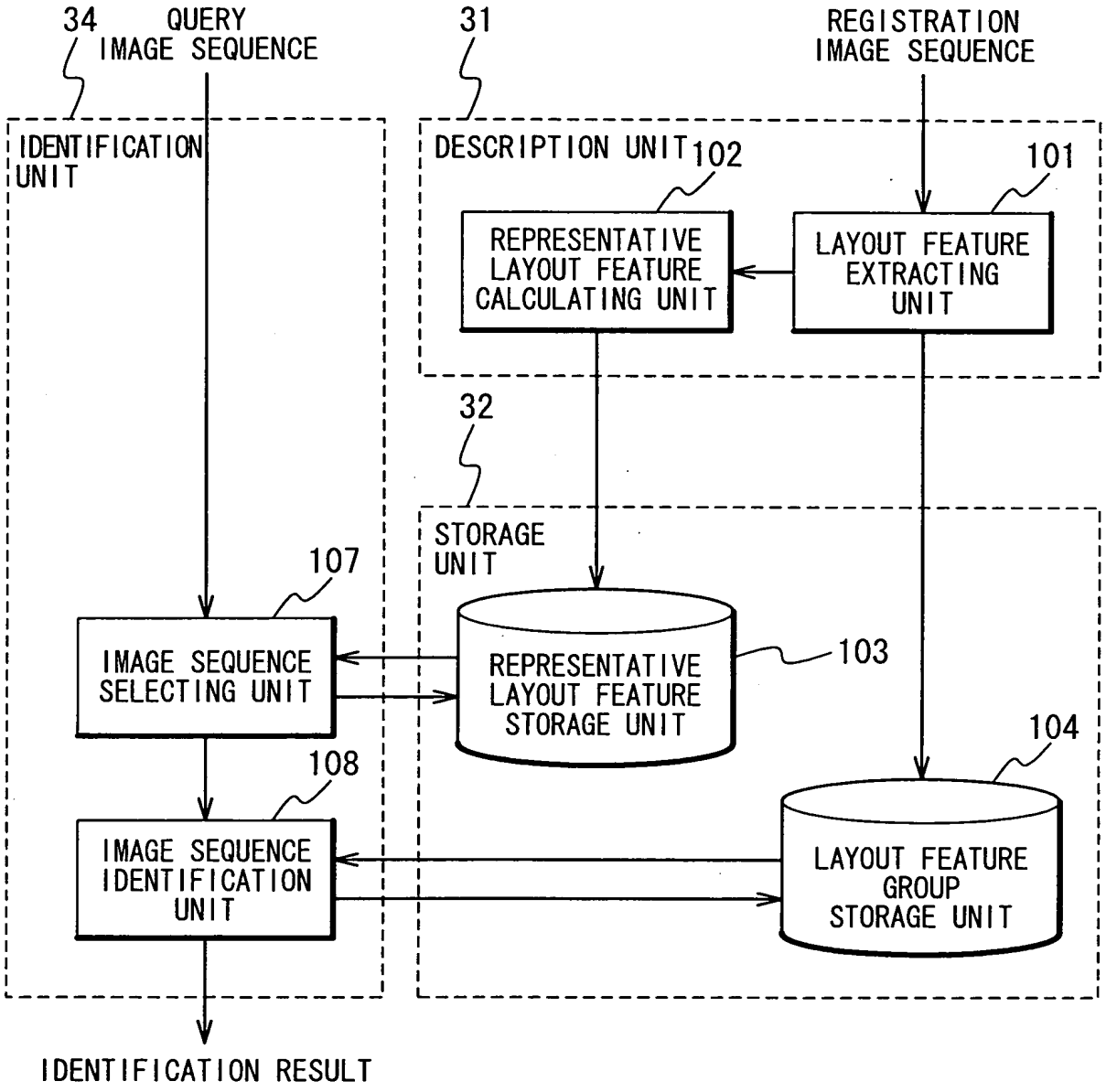
34
QUERY IMAGE SEQUENCE
31
REGISTRATION IMAGE SEQUENCE
IDENTIFICATION UNIT
DESCRIPTION UNIT
102
101
REPRESENTATIVE LAYOUT FEATURE CALCULATING UNIT
LAYOUT FEATURE EXTRACTING UNIT
32
STORAGE UNIT
107
IMAGE SEQUENCE SELECTING UNIT
REPRESENTATIVE LAYOUT FEATURE STORAGE UNIT
103
104
108
IMAGE SEQUENCE IDENTIFICATION UNIT
LAYOUT FEATURE GROUP STORAGE UNIT
IDENTIFICATION RESULT

Fig. 11

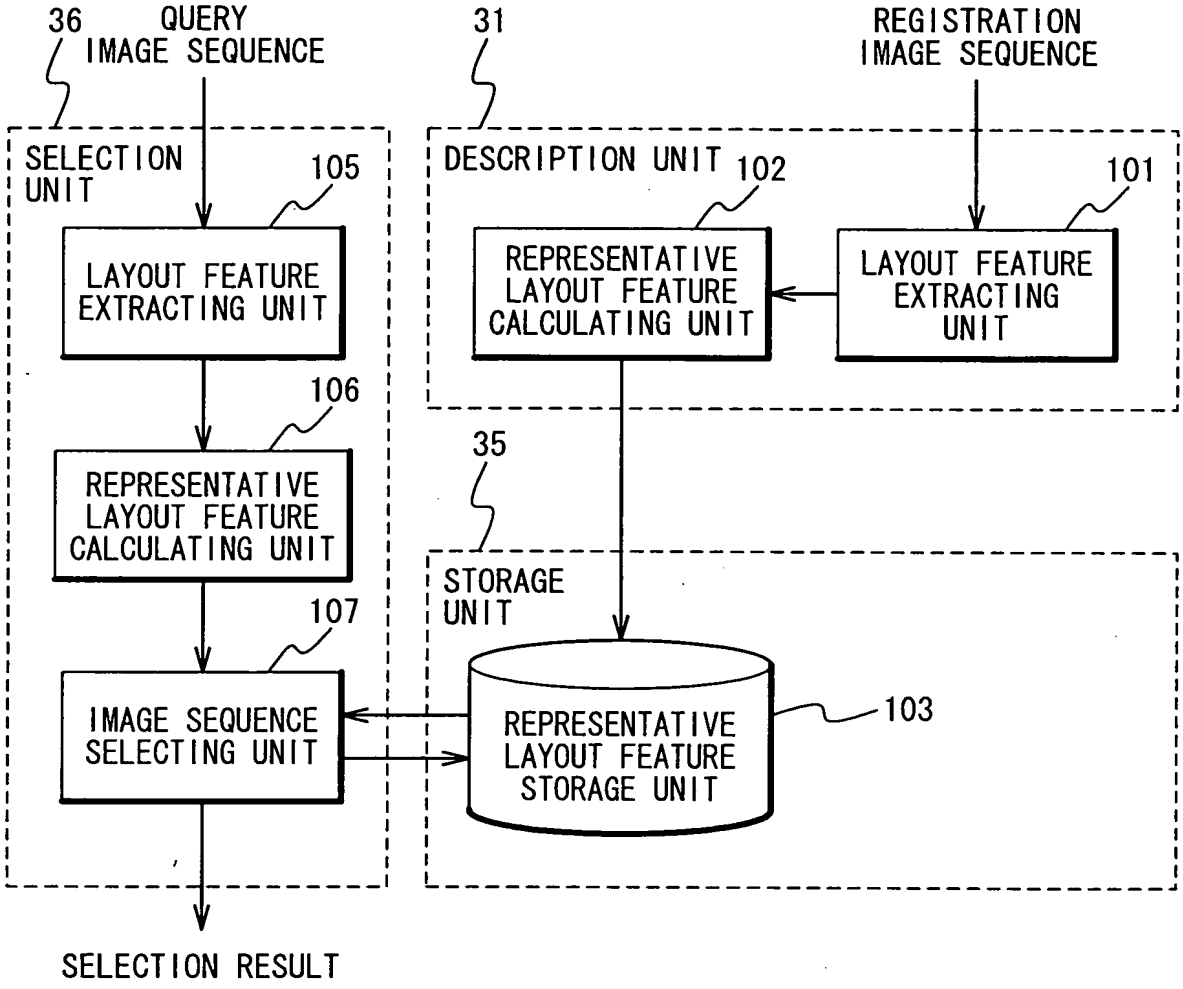
36
QUERY IMAGE SEQUENCE
31
REGISTRATION IMAGE SEQUENCE
SELECTION UNIT
105
LAYOUT FEATURE EXTRACTING UNIT
106
REPRESENTATIVE LAYOUT FEATURE CALCULATING UNIT
107
IMAGE SEQUENCE SELECTING UNIT
SELECTION RESULT
DESCRIPTION UNIT
102
REPRESENTATIVE LAYOUT FEATURE CALCULATING UNIT
101
LAYOUT FEATURE EXTRACTING UNIT
35
STORAGE UNIT
103
REPRESENTATIVE LAYOUT FEATURE STORAGE UNIT

Fig. 12

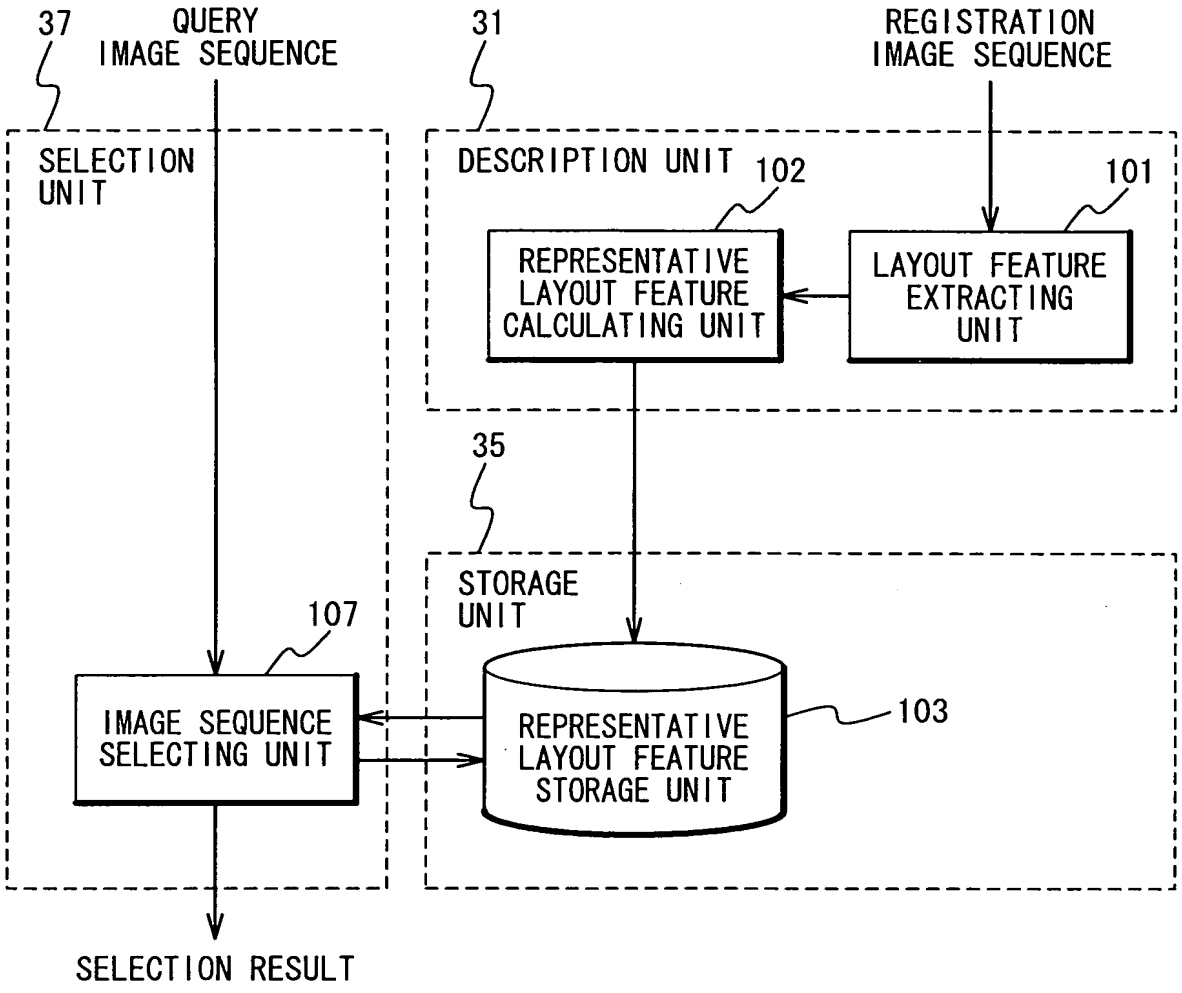
37
QUERY IMAGE SEQUENCE
31
REGISTRATION IMAGE SEQUENCE
SELECTION UNIT
DESCRIPTION UNIT
102
101
REPRESENTATIVE LAYOUT FEATURE CALCULATING UNIT
LAYOUT FEATURE EXTRACTING UNIT
35
STORAGE UNIT
107
IMAGE SEQUENCE SELECTING UNIT
REPRESENTATIVE LAYOUT FEATURE STORAGE UNIT
103
SELECTION RESULT

Fig. 13

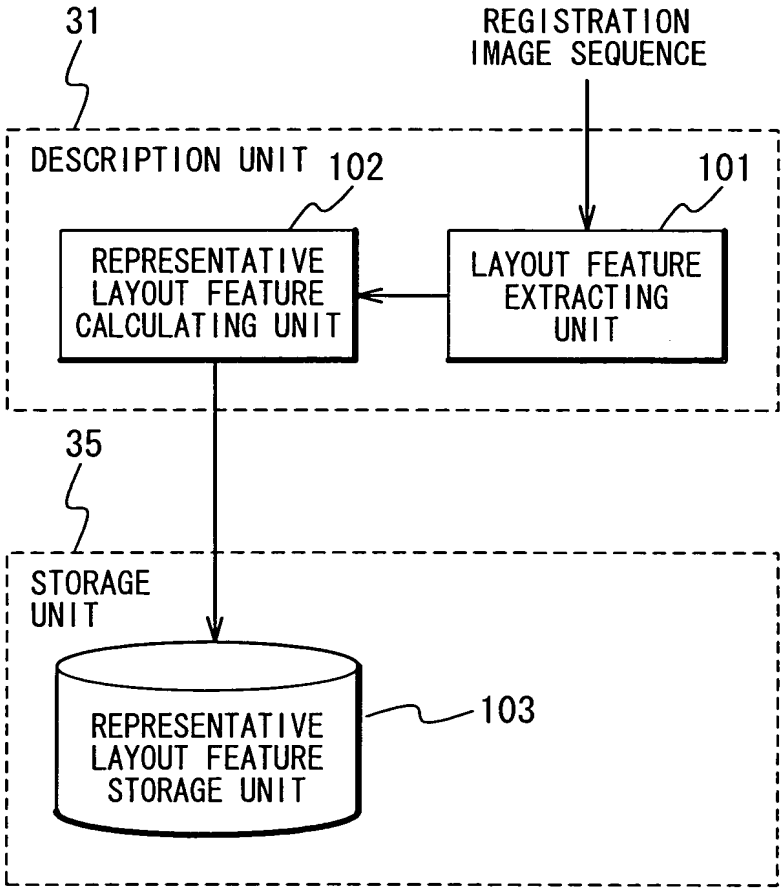
31
REGISTRATION IMAGE SEQUENCE
DESCRIPTION UNIT
102
101
REPRESENTATIVE LAYOUT FEATURE CALCULATING UNIT
LAYOUT FEATURE EXTRACTING UNIT
35
STORAGE UNIT
REPRESENTATIVE LAYOUT FEATURE STORAGE UNIT
103

Fig. 14

| Description Tools | Average | Medium | Intersection |
|---|---|---|---|
| Color Layout | Y | Y | n/a |
| Edge Histogram | Y | Y | n/a |

Fig. 15

| GofGopFeature{ | Number of bits |
|---|---|
| Aggregation Flag | 1 |
| if(AggregationFlag){ | |
| AggregationType | 3 |
| } | |
| DescriptionID | 8 |
| Descriptor | DEPENDING ON FEATURE |
| } | |

Fig. 16

| AggregationType | aggregation |
|---|---|
| 000 | prohibited |
| 001 | Average |
| 010 | Median |
| 011 | Intersection |
| 100-111 | reserved |

# Fig. 17

```
<complexType name= “GofGopFeature” >
<complexContent>
<element name= “Descriptors” xsi:type= “mpeg7:PictureType” />
  <attribute name= “aggregation” use= “optional” >
  <simpleType>
    <restriction base= “string” >
      <enumeration value= “Average” />
      <enumeration value= “Median” />
      <enumeration value= “Intersection” />
      <enumeration value= “unspecified” />
    </restriction>
  </simpleType>
  </attribute>
<element>
</complexContent>
</complexType>
```